



Department of  
**Local Government, Sport  
and Cultural Industries**

# More People More Active Outdoors

A Framework for Outdoor Recreation  
in Western Australia 2019













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# **More People More Active Outdoors**

A Framework for Outdoor  
Recreation in Western Australia 2019







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# Introduction

## Purpose of this framework

Outdoor recreation, nature-based tourism and adventure recreation make a huge contribution to the health, wealth, well-being and happiness of individuals and communities in Western Australia. They also contribute greatly to the State's economy.

Every day, Western Australians enjoy our State's unique outdoor lifestyle - whether walking, riding, exploring, exercising, paddling or engaging in a range of outdoor and adventure activities.

The Department of Local Government, Sport and Cultural Industries identifies promotion of adventure and outdoor recreation as a challenge which must be addressed to achieve the key outcomes of increased participation, improved performance, greater well-being and enhanced social capital and organisational capability.

The purpose of this framework is to guide local and regional outdoor recreation planning by government, corporate and community stakeholders. It is also intended to encourage cross agency and organisational collaboration to maximise the benefits of outdoor recreation for participants and service providers.









# Outdoor recreation activities include:

## Land-based



bushwalking



trail running



mountain biking



orienteering and navigation



rock climbing and abseiling



trail bike riding



horse riding



four-wheel driving



camping

## Water-based



swimming



surfing



kayaking and white water rafting



canoeing



paddle boarding



sailing



kiteboarding



wind surfing

## Where does outdoor recreation take place?



urban parklands



regional and national parks



rivers, lakes and oceans



wilderness areas



# Being Active Outdoors

## Five pillars supporting the benefits of outdoor recreation



### Personal development, challenge and enjoyment

- Building resilience
- Fostering spirit and identity
- Changing lives of young people at risk
- Encouraging challenge and risk taking



### Improved health and wellbeing

- Physical and mental health benefits
- Social cohesion and inclusion
- Avoided healthcare costs



### Outdoor learning

- Outdoor literacy
- Outdoor education



### Connection to nature

- Getting back to nature
- Volunteering
- Environmental stewardship



### Economic development

- Investment in tourism and recreational facilities
- Pathways to employment



# Pillar One: Personal development, challenge and enjoyment

Outdoor adventure enables people to develop resilience, leadership, problem solving skills and self-reliance, contributing to the ability to deal with the everyday stress of modern life.<sup>1</sup>

The evidence shows that active and self-reliant people are less susceptible to depression, anxiety and anti-social behaviour.

## Building resilience

Good mental health thrives when people have the capacity to adapt or even flourish in the face of challenges. Increased resilience can reduce the incidence of depression and mental health disorders.<sup>2</sup> Outdoor recreation and adventure provide the challenge, requirement for decision-making, opportunity for teamwork (trust) and controlled risk that can support resilience building blocks.<sup>3</sup>

## Fostering spirit and identity

Engaging in activity in a natural setting enables participants to focus on the present, providing a safe place for personal growth and renewed self-confidence.<sup>4</sup> Access to the Australian outdoors is an important component of our national and cultural identity. 'Connection to country', a concept with enormous importance for Aboriginal people, can be appreciated by all Australians.

## Changing lives of young people at risk

Outdoor recreation – particularly in the form of adventure activities or wilderness therapy – has been shown to have both preventive and remedial benefits for people at risk.<sup>5</sup> For example, outdoor therapy has been linked to reduced delinquency among adolescents.<sup>6</sup>

## Encouraging challenge and risk taking

Lack of exposure to challenging situations can deprive children and young people of the opportunity to develop risk awareness and risk management skills.<sup>7</sup> Early experiences of outdoor adventure and 'safe danger' can progressively develop risk awareness in environments where the challenge is real, but the potential consequences are managed.<sup>8</sup> Participation in 'safe danger'<sup>9</sup> and 'controlled risk' activities can facilitate development of life skills such as risk assessment and management, resilience and teamwork.







## Pillar Two: Improved health and wellbeing

Physical inactivity is a recognised leading cause of ill health and a large associated health, social and economic burden. Many chronic diseases, both physical and mental, share common preventable risk factors.<sup>10</sup>

### Keeping a lid on healthcare costs

Avoided healthcare costs are costs caused by a health problem or illness which are avoided by a healthcare intervention. In Victoria, avoided healthcare costs associated with participation in outdoor recreation were calculated as \$265 million.<sup>11</sup>

Apart from physical health benefits, research has demonstrated that contact with nature has restorative properties, fostering an individual's feelings of vitality, alertness, focus, and resurgence in energy.<sup>12</sup>

Research exploring relationships between the duration, frequency and intensity of exposure to urban nature found that people who made long visits to green spaces had lower rates of depression and high blood pressure, and those who visited more frequently had greater social cohesion.<sup>13</sup>

In addition, many outdoor activities are social in nature and can alleviate social isolation and promote integration with others and community.<sup>14</sup>

Image: © Andrew Pollard.







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## Why the 'green gym' is better than exercising indoors



There is a growing body of evidence that shows that 'nature's green gym' provides benefits that outweigh those provided by exercising indoors. For example, athletes running on nature trails have reported less fatigue after a 20-minute run than they did following a similar length run on an indoor track.<sup>15</sup>



Outdoor exercise has been shown to lower systolic blood pressure more than treadmill training<sup>16</sup>, and simply walking or running outdoors could lead to a lower risk of depression.<sup>17,18</sup>



Mental calming gained from time spent in nature, such as an outdoors walk for as little as 20 minutes, has been found to mitigate the effects of attention deficit hyperactivity disorder.<sup>19</sup> In addition, children's attentional functioning benefits from time spent outdoors.<sup>20</sup>

## Pillar Three: Outdoor learning

The outdoors has been proven to assist with learning. Students who experience nature as part of the educational process have proven to be more engaged and enthusiastic in all areas of study. They score higher on tests in reading, writing, and maths and have demonstrated better listening skills.<sup>21</sup>

### Getting an early start

A multitude of studies have shown that playing and learning in natural environments is essential to children's development of core skills, including observation, problem-solving and reasoning, categorisation, creativity, imagination, and risk-identification, along with emotional and intellectual development.<sup>22</sup>

Interest is increasing in promotion of outdoor learning to address detrimental effects to children's long-term health and wellbeing through risk-averse approaches to play, lack of time for unstructured outdoor play, and time spent in screen-focused sedentary activity.<sup>23</sup>

Outdoor play in nature offers several benefits, including opportunities to learn physical skills and build stamina, develop social skills, manage risks and foster respect for nature.<sup>24</sup>

### Outdoor education

Outdoor education can deliver direct knowledge and skills to students and can help foster positive character traits such as resilience, confidence, and leadership skills.<sup>25</sup>

Outdoor education programs can improve self-concept and teamwork among primary and secondary school students and these positive impacts often appear to persist over time.<sup>26</sup>

Outdoor learning is considered an integral component of the Australian national education curriculum from Foundation through to Year 6, with outdoor education activities offered in Years 7-10.<sup>27</sup>

In Western Australia, students in Years 11 and 12 can participate in outdoor education courses to prepare for career and employment pathways in areas such as outdoor leadership, environmental interpretation, environmental planning, facilities management, eco-tourism, and outdoor education.<sup>28</sup>





## Pillar Four: Connection to nature

In 2005, the author and journalist Richard Louv coined the phrase ‘nature-deficit disorder’<sup>29</sup> to describe the human costs of alienation from nature. Identified disbenefits included diminished use of the senses, attention difficulties, higher rates of physical and emotional illnesses, a rising rate of myopia, child and adult obesity, Vitamin D deficiency, and other maladies.<sup>30</sup>

It has been demonstrated that positive experiences in nature is one avenue for fostering pro-environmental behaviour and identification as an environmentalist or conservationist.<sup>31</sup> If children are given the opportunity to experience nature through outdoor recreation and play, even in simple ways, environmental stewardship, interaction and engagement may follow quite instinctively.<sup>32</sup>

### Environmental stewardship

The more people who recreate outdoors in the natural environment, the stronger the base for environmental advocacy and the need for responsible conservation of natural environments.<sup>33</sup>

Just as gateway activities can move people from a sedentary to an active lifestyle in manageable steps, outdoor recreation can move people from a focus purely on the activity itself to a more balanced view enabling them to enjoy their chosen activities while enjoying, respecting and protecting the environment which supports that activity.<sup>34</sup>

### Volunteering

Outdoor recreation relies heavily on volunteers who share their passion with others, act as stewards of natural environments and as ambassadors for their activity. Volunteering has benefits for individuals by providing training, personal development and networking, contributing to improved self-esteem, competence and knowledge.<sup>35</sup>

Mid-life environmental volunteering has also been shown to be significantly and positively associated with physical activity, health and wellbeing outcomes and reduced depressive symptoms.<sup>36</sup> A common motivation for becoming engaged in environmental volunteering is an enjoyment of the outdoors.<sup>37</sup>







Image: © Recreational Trailbike Riders Association of WA.

## Pillar Five: Economic development

Viewing nature-based outdoor recreation as just a leisure or lifestyle choice or a health issue can obscure its economic importance. Adventure tourism is one of the fastest growing categories of tourism that attracts high value customers, supports local economies, and encourages sustainable practices.<sup>38</sup>

In 2015-2016, an estimated 2.7 million overnight visitors participated in nature-based activity in Western Australia, an increase of 15% per annum since 2012.<sup>39</sup>

In 2016, a report on the nature-based outdoor economy was commissioned by Outdoors Victoria and Sport and Recreation Victoria. It was found that per capita expenditure was approximately \$1,254 per person per year for a total expenditure of \$7.4 billion.<sup>40</sup>

### Estimated economic value of nature-based outdoor recreation in Victoria

- \$7.4b spent on nature-based outdoor activities each year (equipment, trips, travel, activities, services)
- \$225m from schools on nature-based outdoor recreation
- 71,000 direct and indirect full-time equivalent jobs
- 2,200 school FTEs
- Avoided healthcare system costs \$265m (considered underestimated)
- Activity value (consumer surplus) \$455m
- Outdoor recreation contributes \$720m to improved productivity



## Outdoor recreation participation, settings and experiences

The places and settings where outdoor recreation occurs also will vary greatly depending on the type of experience sought, the level of skill held by individuals and the effort required to access different environments. In addition, some activities require access to specialist equipment, i.e. access to a mountain bike to explore forest trails, or a kayak or paddleboard to explore waterways and lakes.

First experiences of outdoor recreation often occur in places close to home. Local tracks and trails through parklands and bushland, along rivers and beaches provide entry points for outdoor recreation. Managed campsites with appropriate facilities for outdoor recreation provide introductory pathways for skill development and ongoing participation.

Places and experiences that are easy to access and require little equipment or limited skill will attract higher levels of participation. Easy progressions such as access to urban trails or promoting a longer walk to a more rewarding picnic spot or associated activities (such as geo-caching) can create opportunities for increased physical activity and a deeper engagement with the natural environment.

Activities in remote locations require higher levels of individual skill to ensure safety and provide an intensity of experience not always found in more managed environments.

One challenge to providing a range of activity locations, and to meeting the diverse needs of outdoor recreation participants, is that infrastructure such as trails are often free public facilities. This can make investment in outdoor recreation infrastructure projects inherently more difficult to justify.

### **Why investment in trails is so important to outdoor recreation**




Many outdoor activities involve some form of journey — whether it's walking, paddling, cycling or climbing - to navigate from one place to another. Tracks and trails provide access, direction, pathways for exploration and open opportunities for a variety of outdoor recreation experiences on land and water.

Well-planned and well-designed recreational trails can reduce environmental impact, attract visitors and encourage more people to be more active, more often.<sup>41</sup>









# Participation spectrum

This participation spectrum gives examples of how people take part in diverse types of outdoor recreation experiences in different outdoor settings.

Participation spectrum			
<b>Outdoor aware</b>  	Virtual or visual	On-screen viewing and/or spectating	
	Incidental	Spending time in green spaces near home	
	Outdoor play	Play and exploration of outdoor places	
<b>Outdoor active</b>  	Managed outdoor recreation	Participation in low-risk outdoor activities in managed environments	
	Adventure recreation	Participation in more challenging activities and extended visits to natural environments	
	Outdoor immersion	Multi-day activity and/or overnight camping in natural environments	
<b>Outdoor adventure</b>  	Wilderness experience	Self-sufficient, multi-day experience in remote locations	
	Extreme adventure	Life-affirming, life-changing challenge in extreme conditions	



	Setting	Experience sought	Level of skill required	Level of participation
	Urban parks and outdoor spaces: easily accessible and highly developed	<ul style="list-style-type: none"> <li>• Security</li> <li>• Comfort</li> <li>• Social interaction</li> </ul>		
	National and regional parks and reserves, and campsites: moderately accessible with limited development	<ul style="list-style-type: none"> <li>• Managed risk</li> <li>• Some comfort</li> <li>• Some interaction with others</li> </ul>		
	Wilderness locations: remote access with little or no development	<ul style="list-style-type: none"> <li>• Solitude</li> <li>• Risk taking</li> <li>• Self-reliance</li> </ul>		

# Current issues in outdoor recreation

## Pathways to participation

An increasingly urbanised population unfamiliar with the Australian outdoors, lack of experience, and not knowing how to get started are often cited as reasons why people do not participate in outdoor recreation.

There is a need to cater for the diversity of people within Australian society, particularly culturally diverse and marginalised populations who may not be familiar with outdoor activities or landscapes.

There is also a need to provide more entry points and pathways to participation in outdoor recreation to encourage progression from beginner to adventurer. Ethnic background, socio-economic circumstance, physical limitations and gender are often indicators of lower participation. Promoting family and friends group activities can build lasting friendships, trust and social capital through shared participation.

The surging popularity of adventure races and outdoor fitness events, targeting beginner and experienced participants, is testimony to the demand for outdoor challenge activities.

## Access to outdoor places

Multiple agencies are involved in authorising access to natural areas and need to manage competing demands and conflicting land uses.

While outdoor recreation infrastructure projects tend to require less capital expenditure to create or build, they require substantial ongoing operational funding for maintenance.

The unstructured nature of much outdoor recreation means that there are no clear lines of communication to convey messages of environmental stewardship. Some participants appear to value the activity but not the environment in which it occurs. Informal groups can create an environmental risk if unaware of access protocols or agreed practices that apply to commercial operators and events.

Results from a recent community perceptions survey regarding sport and recreation in Western Australia<sup>42</sup> found that:

- 8 in 10 people feel it is important to have local places to be active in nature and only 2 in 3 are satisfied that these spaces are available
- 8 in 10 people feel that it is important to have places for adventure sports and outdoor recreation to grow and develop and only around 2 in 3 are satisfied that these spaces are currently available.



## Managing risk

Challenge and risk-taking mean different things to different people. A task for the outdoors sector is to identify market segments and provide appropriate entry points and progressive stages of challenge that appeal to people of all ages and abilities.

Increased demand for more outdoor recreation will likely lead to an increase in the number of activity providers. There is inherent risk in most forms of outdoor recreation that must be managed, and a duty of care is owed to participants by activity leaders.

Inconsistent approaches to risk management may negatively impact on the credibility of the outdoors sector and impact demand.

## Pathways to employment

As with most growing industries, there is an inevitable lag between the recognition of demand for qualified practitioners and the attraction and training of people with the requisite qualifications.

The quality and capacity of the outdoors sector is reliant on the availability of well-trained and experienced outdoor leaders. However, in the current vocational structure, leading outdoor recreation is often seen as an interim job. Acquisition, training and retention of qualified staff and volunteers is problematic.

Employment in outdoor recreation is often seasonal, usually offering low rates of remuneration and not explicitly rewarding higher qualifications. Staff turnover cycles impact on risk management, as good judgement and risk assessment comes mainly from experience.

Vocational training and standards assessment options are limited in Western Australia. Entry into the workforce requires technical skill qualifications, gained through extensive training and regular re-qualification. Technical skills can be expensive to attain and maintain and a casual instructor may require multiple qualifications such as leadership, roping, first aid, surf rescue and paddling.

While career pathways do exist within the industry through avenues such as outdoor education, activity instruction, training and management, the opportunities for progression to higher salaried, long-term positions can be limited.



# Key areas for action

The outdoor recreation sector is as multi-faceted as the outdoors itself, consisting of outdoor clubs and recreation organisations, not-for-profit and charitable organisations, private activity operators and service providers, private and public schools, and recreation units within State and local government agencies. In addition, land used for outdoor recreation is often managed by State and local government agencies.

Key areas identified for action include:

- Understanding of outdoor recreation opportunities, patterns of participation, and projected user demand
- Sustainable access to natural areas to meet increasing demand
- Pathways to participation, employment and training and
- Evaluation of economic and social impacts.

These key areas for action can be addressed at a strategic level, and within regional and local planning.

## Fundamental objectives

To guide action planning, it is suggested that project partners consider four fundamental objectives – **valuing, encouraging, enabling and developing** outdoor recreation.

### **VALUING = realising benefits**

Ensuring strategies are in place to maximise the economic, social, health, and education benefits of outdoor recreation.

### **ENCOURAGING = promoting participation**

Motivating all stakeholders to act to increase participation, to encourage diversity and ensure access to outdoor recreation for people of all ages, backgrounds and ability.

### **ENABLING = meeting demand**

Investing in outdoor recreation programs, facilities and infrastructure and providing access to places and spaces, to meet the demands of diverse user groups.

### **DEVELOPING = creating opportunities**

Enhancing the skills, capacity and capability of the outdoor sector to provide safe, enjoyable outdoor recreation experiences and keep pace with growing demand.



## Collaboration and cooperation

Maximising the benefits of outdoor recreation will take a team effort involving public, private and not-for-profit organisations from various disciplines (health, education, recreation, environment, tourism and industry) and all levels of decision-making (federal, State, regional and local).

Objective	Possible strategies for complementary and collaborative actions
<b>Valuing</b>	<ul style="list-style-type: none"> <li>• Develop promotional and advocacy programs to promote the benefits of participation in outdoor recreation for people of all ages and abilities</li> <li>• Promote environmental protection messages that align the interests of participants with the interests of the natural environment</li> <li>• Identify opportunities for local businesses, clubs and community organisations to support participation in outdoor recreation</li> </ul>
<b>Encouraging</b>	<ul style="list-style-type: none"> <li>• Support the development and promotion of programs for outdoor literacy and skills progression from an early age</li> <li>• Create entry level options and gateways to participation including programs to connect marginalised or disadvantaged people to the outdoors</li> <li>• Develop resources to encourage schools and education institutions to adopt outdoor learning initiatives and practices</li> </ul>
<b>Enabling</b>	<ul style="list-style-type: none"> <li>• Advocate for investment in outdoor recreation infrastructure and maintenance by government, community organisations and the private sector</li> <li>• Advance the use of technology to market products and services</li> <li>• Promote sustainable use of natural areas and address growth in demand</li> <li>• Support programs that encourage environmental stewardship and volunteering</li> </ul>
<b>Developing</b>	<ul style="list-style-type: none"> <li>• Identify and map local and/or regional providers, government agencies and other organisations involved in outdoor recreation delivery and management</li> <li>• Support development of employment pathways and training programs to progress levels of outdoor leader skill and experience</li> <li>• Encourage standardisation of safety and risk management principles within organisations, or across local and regional areas</li> <li>• Engage with tourism agencies to explore opportunities to boost adventure and outdoor recreation visitation in local and regional areas</li> </ul>

# Endnotes

- 1 Greffath, G., Meyer, C., Strydom, H. and Ellis, S. 2011. Centre-based and expedition-based (wilderness) adventure experiential learning personal effectiveness: an explorative enquiry. *Leisure Studies* 30(3): 345–364.
- 2 VanBreda, Adrian DuPlessis. (2001). Resilience Theory: A Literature Review. South African Military Health Service, Military Psychological Institute,
- 3 Gill, T. (2007). No Fear: Growing up in a risk-averse society. Calouste Gulbenkian Foundation. Available at: <https://timrgill.files.wordpress.com/2010/10/no-fear-19-12-07.pdf>
- 4 Bobilya, A., Akey, L. and Mitchell, D. (2009). Outcomes of a spiritually focused wilderness orientation program. *Journal of Experiential Education* 31(3): 440–443.
- 5 Ungar M, Dumond C, McDonald W. (2005). Risk, Resilience and Outdoor Programmes for At-risk Children. *Journal of Social Work*; 5(3):319-338.
- 6 Shrader L. A grounded theory investigation of at-risk youth who participate in outdoor adventure programs. [ProQuest Dissertations Publishing]; 2012.
- 7 Neill, J. T. (2008). Meta-Analytic Research on the Outcomes of Outdoor Education. Available from. <http://wilderdom.com/research/researchoutcomesmeta-analytic.htm>
- 8 Martinková I, Parry J. (2017). Safe Danger – On the Experience of Challenge, Adventure and Risk in Education. *Journal of Sport, Ethics and Philosophy*, 11(1):75-91.
- 9 Martinková I, Parry J. Safe Danger – On the Experience of Challenge, Adventure and Risk in Education. *Sport, Ethics and Philosophy*. 2017;11(1):75-91.
- 10 World Health Organisation [WHO]. (1986). Ottawa Charter for Health Promotion. International Conference on Health Promotion: The move towards a new public health (Ottawa, 17-21 November 1986) Available from: [http://www.who.int/hpr/NPH/docs/ottawa\\_charter\\_hp.pdf](http://www.who.int/hpr/NPH/docs/ottawa_charter_hp.pdf)
- 11 Marsden Jacob Associates, (2016). Victoria's nature based outdoor economy. Outdoors Victoria and Sport and Recreation Victoria. Available at <http://outdoorstvictoria.org.au/wp-content/uploads/2016/03/Outdoor-Economics.pdf>
- 12 Korpela, K. M., Ylönen, M., Tyrväinen, L., & Silvennoinen, H. (2008). Determinants of restorative experiences in everyday favorite places. *Health & Place*, 14(4), 636-652.
- 13 Shanahan, D.F, Bush, R., Gaston, K.J., Lin, B.B., Dean, J., Barber, E. & R.A. Fuller. (2016). Health benefits from nature experiences depend on dose. *Scientific Reports* 6, 28551, doi:10.1038/srep28551
- 14 Kuo, F. E., Sullivan, W. C., Coley, R. L., & Brunson, L. (1998). Fertile ground for community: Inner city neighborhood common spaces. *American Journal of Community Psychology*, 26(6), 823-851.
- 15 Peacock, J., Hine, R. and Pretty, J. (2007). Got the blues, then find some greenspace — the mental health benefits of green exercise activities and green care. *Mind Report* 1.0 February 2007. Available at <http://en.calameo.com/read/0009143747c40eadd7eeb>
- 16 Maller, C., Henderson-Wilson, C., Pryor, A., Prosser, L. and Moore, M. 2008. *Healthy Parks, Healthy People: The health benefits of contact with nature in a park context*. Melbourne, AU: Deakin University, School of Health and Social Development.
- 17 Bratman, G.N., Hamilton, J.P., Hahn, K. S., Daily, G.C. and J.J. Gross. (2015). Nature experience reduces rumination and subgenual prefrontal cortex activation. *Proceedings of the National Academy of Sciences*, 112 (28), 8567-8572. Available at <http://www.pnas.org/content/112/28/8567.abstract>
- 18 Harte, J. and Eifert, G. 1995. The effects of running, environment, and attentional focus on athletes' catecholamine and cortisol levels and mood. *Psychophysiology* 32(1): 49–54.
- 19 Faber-Taylor, A. and Kuo, F. (2009). Children with attention deficits concentrate better after walk in the park. *Journal of Attention Disorders* 12(5): 402–409.
- 20 Faber-Taylor, A., Kuo F., and Sullivan W. (2001). Coping with ADD: The surprising connection to green play settings. *Environment and Behavior*, 33 (1).
- 21 Ernst, J. and Monroe, M. 2004. The effect of environment-based education on students' critical thinking skills and disposition toward critical thinking. *Environmental Education Research* 10(4): 507–522.
- 22 Nature Play SA, (2017). *Learning Outdoors: Benefits/risks*. Available at <https://natureplaysa.org.au/wp-content/uploads/2017/11/NPSA-Learning-Outdoors-Benefits-Risks-opt.pdf>



- 23 Moore, R. C. & Cooper-Marcus, C. (2008). Healthy planet, healthy children: Designing nature into the daily spaces of childhood. In S. R. Kellert, J. Heerwagen & M. Mador (Eds.), *Biophilic design: The theory, science and practice of bringing buildings to life* (pp. 153–203). Hoboken, NJ: Wiley.
- 24 Early Education Australia (2013). Rethinking outdoor learning environments. Available at [http://www.earlychildhoodaustralia.org.au/nqsplp/wp-content/uploads/2013/07/NQS\\_PLP\\_E-Newsletter\\_No59.pdf](http://www.earlychildhoodaustralia.org.au/nqsplp/wp-content/uploads/2013/07/NQS_PLP_E-Newsletter_No59.pdf)
- 25 Grey, T. and Martin, P. (2012). The role and place of outdoor education in the Australian National Curriculum. (2012). *Australian Journal of Outdoor Education*, 16(1), 39-50.
- 26 Neill, J. T. (2008). Meta-Analytic Research on the Outcomes of Outdoor Education. Available at: <http://wilderdom.com/research/researchoutcomesmeta-analytic.htm>
- 27 Australian Curriculum, Assessment and Reporting Authority (n.d.). Outdoor learning. Available at <http://resources.australiancurriculum.edu.au/curriculum-connections/outdoor-learning/outdoor-learning/>
- 28 School Curriculum and Standards Authority (2017). Outdoor Education. Available from <http://wace1516.scsa.wa.edu.au/syllabus-and-support-materials/health-and-physical-education/outdoor-education>
- 29 Louv, R. (2005). *Last child in the woods: Saving our children from nature deficit disorder*. Chapel Hill, NC: Algonquin.
- 30 Consequences of an indoor childhood, (n.d.). Nature Kids Institute. Available at: <https://naturekidsinstitute.com/optin18529868>
- 31 Finger, M. (1994). From knowledge to action? Exploring the relationships between environmental experiences, learning, and behavior. *Social Issues*, 50 (3), 141-160
- 32 Kahn Jr, P. H., & Kellert, S. R. (2002). *Children and nature: Psychological, sociocultural, and evolutionary investigations*. Cambridge, MA: MIT Press.
- 33 Leave No trace Australia (n.d.). 7 principles of Leave No Trace. Available at <http://www.lnt.org.au>
- 34 Martin, P. (2004). Outdoor adventure in promoting relationships with nature. *Australian Journal of Outdoor Education*, 8 (1), 20-28.
- 35 Molsher, R. and Townsend, M. (2016). Improving Wellbeing and Environmental Stewardship Through Volunteering in Nature. *EcoHealth*, 13 (151), doi:10.1007/s10393-015-1089-1
- 36 Pillemer, K. Fuller-Rowell, T.E., Reid, M.C., and Wells, N. M. (2010). Environmental volunteering and health outcomes over a 20-year period. *Gerontologist*, 50 (5), 594-602. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2937248/>
- 37 Miles, I., Sullivan, W. C., & Kuo, F. E. (2000). Psychological benefits of volunteering for restoration projects. *Ecological Restoration*, 18(4), 218-227.
- 38 Adventure Travel Trade Association (2015). Adventure Tourism Development Index. Available at [https://www.adventureindex.travel/docs/atdi\\_2015.pdf](https://www.adventureindex.travel/docs/atdi_2015.pdf)
- 39 Tourism WA (2016). Visitor Statistics. Available at [http://www.tourism.wa.gov.au/Research-Reports/Latest\\_Visitor\\_Facts\\_and\\_Figures/Pages/Visitor-Statistics.aspx](http://www.tourism.wa.gov.au/Research-Reports/Latest_Visitor_Facts_and_Figures/Pages/Visitor-Statistics.aspx)
- 40 Marsden Jacob Associates, (2016). Victoria's nature based outdoor economy. *Outdoors Victoria and Sport and Recreation Victoria*. Available at <http://outdoorsofvictoria.org.au/wp-content/uploads/2016/03/Outdoor-Economics.pdf>
- 41 Department of Sport and Recreation (2017). *Western Australian Strategic Trails Blueprint 2017-2021*.
- 42 Department of Sport and Recreation (2017). *Community Perceptions Survey*.



Department of  
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